Applications of geometric control

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STELLINGEN

behorende bij het proefschrift

APPLICATIONS OF GEOMETRIC CONTROL: CONSTRAINED SYSTEMS AND SWITCHED SYSTEMS

van

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1. The combined setting of geometric control theory and convex/set-valued analysis provides a strong framework to study nonlinear extensions of linear systems, namely constrained systems and switched linear systems.

2. The strictness assumption on controllability results of closed convex processes can be relaxed while keeping the conclusions unchanged.

3. The classical results on controllability of constrained linear systems (where the constraint set is a convex cone) fall into the general case mentioned in the previous proposition.

4. Apart from the widely investigated classical case mentioned in the previous proposition, there exists a second case for which it is possible to formulate a characterization of the controllability of the constrained discrete-time linear system.

5. The two cases mentioned in the previous two propositions give an almost complete characterization of controllability for discrete-time linear systems with convex conic output constraints.

6. In case the (output) constraint set is not a cone but merely a convex set, it is still possible to provide a characterization for the controllability of the constrained discrete-time linear system in most cases. This can be achieved by using the results on controllability and weak asymptotic stability of convex processes.

7. As a very good mathematician once put it right, if you make the right definitions, the results follow.

8. After football and ice skating, complaining about the weather is the third popular sport in the Netherlands.